

Green Building
The Practice and Exploration of
Green Building Energy Conservation in
Commercial Real Estate



绿色建筑

商业地产中绿色节能的实践及探索（一）

万达商业规划研究院有限公司 编著
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绿色建筑 大有可为

一万多年以来人类历史进化的过程实际，就是城镇化的过程，从原始的城镇化一直到工业化推动的城镇化。城市既是人类最终归宿，又可能变成摧毁地球的最主要的因素。所以城市是一把双刃剑，一方面使人们生活条件更好，但另一方面也可能成为灾难之源。关键在于我们应如何控制建造城市的过程、如何有效地管理城市规划建设。

城镇化就像大型推土机，对资源、能源和生态产生了巨大的消耗和破坏。中国的城镇化虽然取得了有效的发展，但是城市发展依然面临环境污染、交通拥堵、资源浪费等问题，绝大多数的能源也被城市消耗，所以要提升城镇化的质量，城市自身需要转型。但城镇化也有可能是造福的机器，如果我国城镇化通过绿色建筑、绿色产业、绿色交通和绿色城市发展模式来推动，就能为子孙后代留下可持续发展的资源。必须要从现在开始追求质量型的城镇化，城市的发展一方面使人的生活更美好，同时也需要对下一代负起责任，那么就必须要转向生态型的城市，绿色建筑则是生态城市或者低碳城市的基础。

绿色建筑效益显著，发展潜力十分巨大。我国近年近百项获得星级绿色建筑项目的分析结果表明，“四节”（节能、节水、节地、节材）成效巨大。综合来看，住区绿化率平均大于38%，平均节能率达58%，节水率大于15.2%，可循环材料比例大于7.7%，二氧化碳减排每平方米建筑面积达28.2千克。我国未来绿色建筑发展可谓潜力巨大、“钱”途无限。

目前，我国正处于加快推进城镇化的关键时期，发展绿色建筑面临极好的机遇。要抓住机遇，从规划、法规、技术、标准、设计等方面全面推进“绿色建筑行动”，千万不要丧失机遇。我们不能零敲碎打地进行建筑的节能、节水、节地、节材，例如一个建筑今年是节能的建筑，明年又改造成节水的建筑，后年又改造成节材的建筑，再改造成室内环境良好的建筑，这种做法就会费工、费钱、费能、费财，无疑会成为“扰民”的工程。

书中，万达集团提出的绿色建筑的发展规划、制度约束、专项技术研究、企业标准和建筑设计、建造和运行管理全面践行绿色建筑理念，在大型公共建筑耗能高、资源浪费的局面下积极追求绿色建筑发展策略，以绿色科技力量营造大型商业建筑舒适、健康的室内环境。绿色建筑发展中应注重以下原则：

一是资源节约原则。绿色建筑讲究权衡优化，以大量的能源消耗和破坏环境的代价所获得的舒适性的“豪华建筑”不符合绿色建筑要求；而放弃舒适性，回到原始的茅草屋中，虽然消耗能源和资源较少，也不是绿色建筑所提倡的。从这一理念出发，不鼓励在设计中追求过高的人均新风量标准，否则空调采暖能耗会增加；不鼓励采用过高的绿化指标，而降低土地利用效率；不建议片面追求富丽堂皇的奢华效果，而耗费大量资源提高装修档次。

二是全过程控制原则。在绿色建筑实施各阶段都贯彻绿色建筑理念。近年来相继建设完成的一些绿色建筑，其实际运行性能以及“节能、节水、节材”等指标与设计目标相比，存在不同程度的差异，原因是施工和运行管理中存在控制环节的缺失。此书的编者虽进行了一些尝试，但总体上还是缺少此类项目的实际参数与设计参数的对比分析。在当前我国各地建筑设计、施工、管理水平存在差异的情况下，基于全过程控制、分阶段管理的绿色建筑思路尤其重要。

三是系统整合优化原则。绿色建筑涉及专业众多，技术体系复杂，比传统设计更加强调专业分工和协同工作，更注重设计过程的精细化、专业化。绿色建筑的精专化设计，实质就是要求建筑设计从粗放设计走向精细化设计，从局部设计走向整体性设计，避免形成“产品堆砌”和“技术冷拼盘”。因此，各专业的合作必须从概念设计阶段就开始紧密合作，而不是建筑师一个人的舞台。通过精专化的设计、详细的计算机模拟对比分析的综合考虑，在对各种技术方案进行技术经济性的统筹优化的基础上，达到控制成本、合理实现“四节一环保”指标的目标。欣慰的是，万达商业地产中绿色节能的实践及探索在精细化设计的道路上已经迈出了重要的第一步。

绿色建筑让城市生活更低碳、更美好。我国绿色建筑的发展已从“启蒙”阶段迈向“快速发展”阶段。这场建筑界的革命既有可能助推我国走向绿色低碳发展之路，同时，也给城市发展带来巨大的机遇。相信基于社会各界的精诚合作和扎实工作，绿色建筑将迈上新的台阶，我国的城镇化之路也会变得更加生态和可持续。

大力建设绿色建筑、发展绿色经济是全世界应对环境问题的正确选择。绿色建筑最容易集大成，最容易涌现出类拔萃的人才，最容易形成良性竞争的局面，最容易使人们的聪明才干脱颖而出，最容易让我们抓住机遇，而机遇永远垂青于实干家。落实国家节能减排战略，需要各界的共同努力。万达集团作为我国土生土长的商业地产商，从社会责任的高度，向传统的开发建设模式挑战，从而带动行业的生态绿色发展，可谓是难能可贵。



2013年3月

Preface

Green Buildings Have Brilliant Future

The human history of more than ten thousand years, is actually a process of urbanization, which includes the primitive urbanization and the urbanization driven by industrialization. City is the human's destination, while it may become the main factor to destroy the earth. So the city is a double-edged sword. It gives people better living conditions. But on the other hand, it may also become the source of disaster. The key is how to control the pace of city development and how to effectively manage the urban planning and construction.

Urbanization, just like a large bulldozer, consumes and destroys much resource, energy and ecology. China's urbanization has effective development, but urban development still faces problems such as environmental pollution, traffic congestion, waste of resources, etc. The majority of energy is also consumed by the city. So to improve the quality of urbanization, the city itself needs restructuring. However urbanization could also be a machine providing many benefits. If China's urbanization follows the developing models such as green building, green industry, green transportation and green urban development, we can leave sustainable resources to our future generations. From now on, we must pursue the high quality of urbanization. Urban development makes people's lives better, but also need us take responsibility for the next generation. So it is necessary to transform to eco-city. Green building is the foundation of a eco-city or low-carbon city.

Green building provides significant benefits and has great potential. Based on the analysis of almost a hundred recent star-awarded green building projects in China, "the four savings" achieved great success. In General, the average green ratio of residential is greater than 38%. The average energy saving is about 58%. The average water-saving ratio is more than 15.2%. The proportion of recycled materials is greater than 7.7%. The reduction of carbon dioxide emissions reaches 28.2 kg per square meter of floor area. China green building has unlimited potential and provide much fortune.

At present, China is in the critical period of urbanization acceleration. Green building faces great opportunities. To seize the opportunity, we need to comprehensively promote

the “green building action” through planning, regulations, technologies, standards and design, etc. We could not lose the opportunity. We could not partially achieve the savings of energy, water, land and materials. For example, we build an energy-efficient building this year. Next year we renovate it to water-saving building. The year after, we renovate it into a materials-saving building. And then we renovate it into a building with great interior environment. This approach will cost labor, money and energy. The project will undoubtedly become a “nuisance” project.

In this book, Wanda Group proposes the comprehensive concepts of green building development planning, institutional regulations, special technology research, corporate standards and architectural design, construction, operation and management. Facing the challenge of high energy consumption and waste of resources of large public buildings, Wanda Group, using new green technologies, pursues to create large commercial buildings with comfortable and healthy indoor environment. Green building development should focus on the following principles:

First is resource conservation principle. Green building stresses balance and optimization. With a lot of energy consumption and the cost of destroying the environment, a comfort “luxury building” does not meet the green building requirements. On the other hand, the original thatched cottage without comfort, although with less the consumption of energy and resources, is not what green building advocates. From this concept, we do not encourage the pursuit of high standards in fresh air per capita, which would increase air conditioning heating energy consumption. We do not encourage excessive green ratio, which could reduce land use efficiency. We do not recommend the one-sided pursuit of magnificent luxurious effect, which would cost a lot of resources to improve decoration.

Second is the whole process control principle. Green building philosophy should be followed in all stages of the implementation of green building. There are some recently completed green buildings, whose actual operating performance and savings of “energy, water and materials” could not meet the design goals. This is because of absence of control during the construction and operation management. Although the book has made some attempts to address this issue. But it lacks the actual parameters for comparison with the design parameters of the real projects. Currently there are differences in the levels of building design, construction and management in individual locality. The concept of whole process control and phased management is particularly important.

Third is principle of the systematic integration and optimization. Green building involves many disciplines and complex technical systems. Comparing to traditional design, green building design stresses specialization and teamwork. It focuses more on design refinement and specialization. The essence of green building design’s refinement and

specialization is to request architectural design transfer from the extensive design to fine design, from the local design to holistic design. We try to avoid the formation of “product stuffing” and “technology cold platter.” Therefore, the disciplines’ close cooperation must start from the conceptual design stage. This should not be the architect’s one-man show. Through comprehensive consideration of design specialization and detailed computer simulation comparative analysis, we can achieve the goal of cost control and realization of “four savings plus one protection”. The good news is that, Wanda commercial projects have taken an important first step in the practice of energy saving and explore the design refinement.

Green buildings make life more low-carbon and more beautiful. Green building’s development in our country has changed from “enlightenment” stage to the “rapid development” stage. This revolution in the construction industry could boost our country go to the path of green low-carbon development. At the same time, it also has brought great opportunities to the urban development. I believe, based on every community’s close cooperation and dedicated work, green building will climb to a new level. China’s urbanization will become more ecological and sustainable.

Efforts to build green buildings and to develop green economy are the world’s right choice responding to environmental issues. Green Building is most likely to epitomize previous success, to culture emerging talent, to form healthy competition situation and to make intelligent people outstanding. It provides more opportunities. And opportunities always favor the doers. Implementation of the national strategy of energy conservation and low-emission requires the joint efforts of everyone. As China’s homegrown commercial real estate developer, Wanda Group, from the height of social responsibility, is commendable to challenge the traditional model of development and construction, to drive the industry’s eco-green development.

Qiu Baoxing
Vice Minister of the Ministry of Housing and Urban-Rural Development
March, 2013



王健林

大连万达集团股份有限公司董事长

中国慈善联合会副会长

中国慈善总会荣誉会长

中国企业家协会副会长

中国商业联合会副会长

坚持绿色发展 践行社会责任

今年是万达集团成立第25周年。截至2012年年底，万达集团企业资产达到3000亿元，已在全国开业67座万达广场，38家五星级酒店，累计持有物业面积1290万平方米，规模全球第二。计划至2014年开业110座万达广场，持有物业面积2300万平方米，成为全球规模第一的不动产企业。

万达商业地产非常重视环境保护，坚持绿色发展，绿建节能工作不是仅停留在项目的设计、建造阶段，而是更加注重运营阶段的节能环保。绿色设计、建造是为了实现绿色运营，只有绿色运营才能达到真正的长期节能环保，所以绿色运营才是万达绿色发展的终极目标。

万达的绿建节能工作有着完善的管理制度和标准作保障。万达制订了《万达集团节能工作规划纲要》、《万达广场购物中心节能工作指南》和《项目管理制度》以确保节能工作的正确路线，颁布了设计标准和建造标准来实现绿建工作的统一化和系列化。《万达集团节能工作规划纲要》是万达节能工作的核心制度和执行依据，其明确了整体节能工作的战略目标、工作规划和保障体系。

截至2012年年底，共有33个已开业的万达广场获得国家“绿色建筑设计标识”认证，12个酒店获得国家“绿色建筑设计标识”认证，其中10个开业的万达广场首次获得了“绿色建筑运行标识”认证，实现了国内大型商业购物中心绿色建筑运行标识零的突破。自从我国施行绿色建筑认证以来，获得绿色建筑运行标识认证的大型购物中心全部为万达广场，绝大部分获得绿建设计标识的建筑也是万达广场。事实证明：我们的绿色节能工作没有停留在纸面上，而是逐步落实，真正实现了绿色运营！

万达集团自成立以来一直重视节能环保工作。早在2000年，万达开发的大连雍景台项目就成为全国最早的节能住宅之一，2003年南昌万达星城被评为江西省节能示范样板小区。万达集团的绿建节能实践经验充分说明，在绿色建筑和绿色运营方面，企业有很宽的路可走，绿色本身是有效益的。

万达商业规划研究院绿建节能研究所是万达集团绿建节能工作的专职机构，是绿色建筑科研、设计与建设的主管部门，牵头负责万达广场绿建节能技术的研发工作。为了在万达广场中实现逐年降耗的目标，推行的能源管理平台已分别建成单店级和集团级，覆盖北京石景山、上海江桥、武汉菱角湖等21个万达广场，20家万达百货门店，包括360余台采集终端、9000余台计量表具。2012年节能效果显著，各地万达广场平均能耗比2011年降低10%。万达集团商业规划院、商管公司和信息中心共同开发研制的“一键式”集中控制系统，可实现不同地域、不同时段、不同业态的“一键式”智能化集中管理，从而进一步节约大量能源，该系统从2013年下半年开始，在全国万达广场逐步推广。

万达学院不仅是国内首个获绿建三星设计和运行标识的校园，更是万达集团宣传节能环保理念的基地，每个万达人都能在万达学院接受到节能环保理念的培训。目前，万达集团已投入使用的项目建设和后期运营的全程信息化管理平台，正是在节能环保理念的指导下，充分利用信息网络技术，实现了项目远程实时监控和异地资源共享，大大减少了总部与现场之间的人员交通往来，很大程度上降低了交通能耗。

万达的理想是做百年企业，所以做事目光长远，追求长期利益。万达现在从事的产业，无论商业地产、文化产业还是旅游投资，必须坚持走绿色道路，企业才能够获得更好的收益、才能有更长远的发展，走这条正确道路企业才能持久



2013年3月

Insistent on Green Development Implement on Social Responsibilities

This year marks the 25th anniversary of Wanda's founding. By the end of 2012, Wanda's total assets amounted to 300 billion RMB, running 67 Wanda Plazas, 38 Five-Star Hotels with total area of invested property of 12.9 million Square Meters ranking Wanda No.2 in the world. We have set our plans to open 110 Wanda Plazas by 2014, when our investment properties are projected to reach an area of more than 23 million square meters, and will become the largest commercial property owner in the world.

Environmental protection is on a very high priority in our corporate philosophy, and we insist on the green development. Green building and energy efficiency is not only practice during the project design and construction phase, but also greatly emphasized during the operational phase. The purpose of green design and green construction is to support the green operation, and only the green operation is truly the long-term energy-saving and environmental protection, hence the green operation is the ultimate target of Wanda's green development.

Our green building and energy saving practice is supported by our complete management system and standards. Wanda has issued *Wanda Group Energy Efficiency Planning Code*, *Wanda Plaza Shopping Center Energy-Saving Practice Guide*, and *Project Management Institution*, in order to ensure the right route of our energy-saving practice, and promulgate the design standard and the construction standard to integrate and systemize the green building practice. *Wanda Group Energy Efficiency Planning Code* is the core institution and executive foundation of Wanda energy-saving practice, and it defines our strategic targets, task plans and guarantee systems of our energy saving practices.

By the end of 2012, 33 Wanda Plazas and 12 hotels had been awarded national "Green Building Design Certificate", among which 10 Wanda Plazas were awarded "Green Building Operation Certificate", first of its kind for large-scale shopping centers. Since China starts to issue green building certificate, all large-scale shopping centers that awarded Green Building Operation Certificates are Wanda Plazas, and majority of projects that awarded Green Building Design Certificate are Wanda Plazas. The fact proves that: our green energy-efficiency practice is not only on paper, but also in practice!

Since its founding, Wanda Group has always emphasized on energy efficiency and environmental

protection. As early as 2000, Wanda's Dalian Yong Jing Tai project became the first energy-efficient residence in China; and in 2003 Nanchang Wanda Star City was awarded the demonstration Community of the best energy efficiency practice in Jiangxi Province. Wanda Group's green building and energy efficiency practice approves that, corporations have a wide road for the green building and green operation practice, and green practice can be profitable.

The Green Building Energy Saving Studio of Wanda Commercial Planning and Research Institute is Wanda's professional institute for green building and energy efficiency practice; is the management division in charge of green building research, design, and construction; and is taking the lead for the green building and energy-saving technical research and development for all Wanda Plazas. In order to reduce Wanda Plaza's energy consumption year-by-year, we have developed energy management platforms for property and corporate levels respectively, covering 21 Wanda Plazas including Beijing Shi Jing Shan, Shanghai Hong Qiao, Wuhan Ling Jiao Lake, and 20 Wanda Department Stores, with 360 data-collection terminals and more than 9000 measuring instruments. These devices took great effects in 2012, when Wanda Plazas reduced 10% energy consumption comparing to 2011. The "One Button Control" centralized system jointly developed by Wanda Commercial Planning and Research Institute, Commercial Management Company, and the IT Center, can integrate different districts, time slots and functions under this intelligent system, which can save large amount of energy and resources. Start from the second-half of 2013, this system will be gradually applied in all Wanda Plazas national-wide.

Wanda College is not only the first Three-Star Green Design Certificate and Green Operation Certificated campus in China, but also the base for Wanda to promote the ideology of energy-saving and environmental protection, and every Wanda member can be trained for energy-saving and environmental protection philosophy in Wanda College. Currently Wanda operates the whole-process information control platform for project construction and operation, is exactly under the philosophy of energy-saving and environmental protection, to fully utilize the information and network technology, accomplish project remote monitoring and share resources between different locations, hence to dramatically reduce the travel need between headquarters and local project companies, in which to reduce the traffic energy consumption in a large scale.

With a vision of being a centennial enterprise, Wanda is seeking long-term strategy and interest. Wanda has embraced the course of green development in all the industries it engages whether commercial properties, culture or tourism investment, with a strong believe that only through such a course can it yield better profit and enjoy long-term development.

Wang Jianlin
Chairman of Wanda Group
March, 2013

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第 一 篇

战略与发展